

LASCA LEAVES



Los Angeles County Department of Arboreta and Botanic Gardens

Pruning Demonstration

Some 1,500 people turned out for the deciduous fruit tree pruning demonstration at South Coast Botanic Garden last January 16th. Superintendent Armand Sarinana assembled four two-man teams from among the staff, himself included, to accommodate the eager crowd of home gardeners who gathered in the garden's fruiting orchard to observe the various techniques and ask questions. The procedure called for one member of the team to do the actual pruning while the other explained what was being done and then for both members to answer questions. As it turned out, the question-and-answer sessions occupied the greater part of each demonstration, suggesting thereby that a lot of plum, almond and other stone-fruit trees in the area, not to mention crabapple, apple and pear trees, were about to receive the serious attention of their owners.

Spring Extravaganza

Three years ago this month, the Los Angeles State and County Arboretum, with the assistance of the California Arboretum Foundation and fifteen plant societies, staged its first Spring Extravaganza—a two-day horticultural exercise that attracted a record crowd of 28,000 home gardeners eager to learn and see.

Successive Extravaganzas proved equally popular and now, this coming May 21st and 22nd, the fourth of

these weekend horticultural field days will be presented. As might be expected, proven features of the past will be repeated. What *will* be new will be a greatly enlarged presentation by the Southern California Unit of the Herb Society of America. This energetic group, which shares in the maintenance and cultivation of the three-and-a-half-acre herb garden at the Arboretum, has planned a program around the practical aspects of a subject steeped in legend.

Exhibits, how-to demonstrations, a cookbook sales table and a tea table where visitors can taste free samples of different blends will be located in the Arboretum lecture hall. Demonstrations will be given on how to make herbal perfumes, soaps, liqueurs, dyes, tussie mussies, beauty aids, and how to candy eatable violets, mint leaves, rose petals, and borage flowers. Exhibits will include Shaker herbs, medicinal herbs, Mexican, Greek and Native Indian herbs, herb salts and salt-free seasonings, and propagation.

Another new feature will offer visitors guided walks led by Dr. Leonid Enari, senior biologist in the research division. On Saturday, Dr. Enari will tour the Herb Garden at 10 a.m. and the Australian Section at 1 p.m. On Sunday he will tour the Asian Section at 10 a.m. and the plantings around the Historical Section at 1 p.m. Starting point for the tour of the Australian Section will be in front of the Information Center; the other tours will

start from the Herb Garden.

Traditional features of this event include exhibits by plant societies, the plant clinic, the lecture-demonstrations, and the open house at the research laboratory, plant science library, greenhouses and nursery.

Exhibitors this year include the Epiphyllum, Gladiolus, Hemerocallis and Amaryllis, Pacific Rose, Pasadena Horticultural, San Gabriel Valley Begonia, San Gabriel Valley Orchid, Santa Anita Bonsai, and Bromeliad societies, plus the Southern California Camellia Council and Las Voluntarias of the California Arboretum Foundation.

This year's schedule of lecture-demonstrations includes vegetable gardening at 10 a.m. and 3 p.m. both days; a session on propagation each day at 2:30 p.m.; a session on bonsai each day at 10:30 a.m.; two sessions each day on orchids in the Orchid House, the first at 11 a.m., the second at 1:30 p.m.; a session on roses at 11:30 a.m. on Saturday, one on camellias at the same hour on Sunday; and one session each day on house plants at 2:30 p.m.

At the plant clinic, visitors have only to bring their plants—or their problem alone—to a clinic booth where a panel of experts will offer diagnostic services and corrective recommendations.

Dr. Mildred Mathias

Dr. Mildred Mathias, professor emeritus of botany at UCLA, was honored

by the South Coast Botanic Garden Foundation last January 30th at a Sunday brunch held in the garden's new Frances Young Hall of Horticulture. The Foundation had organized the event to express publicly to Dr. Mathias its appreciation of her many achievements in the fields of botany and horticulture and for her contributions to the improvement of the urban landscape, notably for her work as editor of "Color For The Landscape," now in its second printing.

Mrs. Virginia Baldwin, chairman of the board of Los Angeles Beautiful, Inc., presented Dr. Mathias to the 200 guests, most of them friends, colleagues and community leaders who joined in giving her a warm reception. Commenting on the book, Dr. Mathias noted that it represented the dedicated efforts of many individuals and institutions, and that without the work of Los Angeles Beautiful, the California Arboretum Foundation, the Southern California Horticultural Institute, the Theodore Payne Foundation for Wild Flowers and Native Plants, Dr. Samuel Ayres, Jr., who

served as chairman of the book committee, and the late Ralph D. Cornell, who contributed the color photographs, the book would never have been realized.

Mexican Cuisine

Members of Las Voluntarias of the California Arboretum Foundation will have a rare opportunity to learn how to prepare some classic Mexican dishes this coming June 2nd in the Arboretum lecture hall. On that date, Mr. Raymond G. Marshall, owner and executive chef of the Acapulco Mexican Restaurant in Arcadia, will conduct a two-hour cooking demonstration starting at 9:30 a.m. Interested members and their guests have until May 9th to sign up with Pat Sewell in the Las Voluntarias office, after which remaining seats will be open to the public. There is a \$5 donation.

Fiesta de Flores

The 15th annual Fiesta de Flores, the major fund-raising event sponsored by the South Coast Botanic Garden Foundation in cooperation with the

Department of Arboreta and Botanic Gardens, will be held on the weekend of May 14th and 15th from 10 a.m. to 5 p.m. on the garden grounds. According to Fiesta coordinators Florence Siudmak, Mary Lou Steinmetz, and Patricia Box, emphasis this year will be on conservation under the theme, "Man Alive! Man and Plants Together Thrive!" As in the past, there will be indoor and outdoor exhibits, three lectures a day, and walking and tram tours. Refreshment stands will be set up in various areas.

This year's plant sale, again chaired by Alice Quiros with the assistance of Patty Rubio and Cindy Peters, will occupy the entire patio and adjoining grounds. A special area in the garden has been reserved for the display of California native shrubs and other plants which require little water.

On the evening of May 13th, a preview party will be given for Foundation members and their guests. Party planners Joan Saffo, Genevieve Foley, and Helen Pickett promise a gala evening complete with gourmet dinner and entertainment.

Dr. Samuel Ayres, Jr., Dr. Mildred Mathias, and Mrs. Patricia Box, trustee of the South Coast Botanic Garden Foundation and chairman of the honorary event.



DESCANSO GARDENS: THE VERDUGO YEARS

Manchester Boddy's "Rancho del Descanso," today's Descanso Gardens, freely translates from the Spanish as "ranch of repose," and contemporary visitors can attest to the aptness of the phrase. Such, unfortunately, was not always the case. Boddy's many predecessors on the land form a long and convoluted chain of title, one in which peaceful ownership was most often an illusory, at best a transitory condition. Neither hunting-and-gathering California Indians nor site-seeking Spanish missionaries claimed or made more than cursory use of the land; the story of Descanso Gardens begins instead at chapter two in California history.

Beginning in San Diego in 1769, Franciscan padres collaborated with soldiers of the Spanish crown to establish in Alta California both religious and military footholds. Mission San Gabriel was founded in 1771, and in the contingent of soldiers assigned to military duty there was the man whose name appears first on Descanso Gardens' chain of land titles, Corporal Jose Maria Verdugo, late of Loreto, Baja California. Soldiers earned a meager salary in those uncertain days, and with a wife and growing family to support (he married the daughter of San Gabriel's Ygnacio Lopez, Maria de la Encarnacion in 1779), Verdugo decided to supplement his income by grazing stock near the mission lands.

Because the fertile lowlands between the mission and the sea had been preempted by two other sol-

diers, Manuel Nieto and Juan Jose Dominguez, Corporal Verdugo turned his attention instead to the grassy, wooded hills to the northwest. In 1784, the enterprising corporal received permission from Governor Pedro Fages to graze livestock on an unoccupied triangular tract of land stretching between the Arroyo Hondo (Arroyo Seco) and the Los Angeles River, its southern tip pointing toward the infant Los Angeles pueblo, and its northern boundary formed by the San Gabriel Mountains.

The Nieto, Dominguez, and Verdugo grants of 1784, the first private land concessions in California, inaugurated an era of economic development in the province that, historically, has been labelled "the rancho system." Rancho San Rafael, as Verdugo's 42,000 acre tract came to be known (he originally called it "La Zanja," the water ditch), prospered under the guidance of Jose's brother Mariano. Within four years, Verdugo livestock were sufficiently numerous (at least 150 head of breeding cattle were required) to qualify for issuance of an individual cattle brand, and in due time a house was built near the zanja, crops were planted, and a vineyard set out. In 1797, Jose Maria sought release from army service to join his brother at San Rafael. "I find myself much afflicted with dropsy . . .," he wrote the Governor, and "feeling myself entirely incapable for all duty as a sentinel or as a scout, I . . . solicit my retirement." Permission was

granted and, along with an honorable discharge, Verdugo took to San Rafael an official confirmation of the 1784 Fages land concession, plus a commendation for having successfully fulfilled original governmental expectations.

Despite his physical afflictions, and with the added burden of having "five daughters and one small male child, but no son to assist me," Jose Verdugo made a fine *ranchero*. Cattle were the mainstay of the California economy in the first half of the nineteenth century: dried beef was the principal item of food; leather hides provided harnesses, shoes, and even door hinges; tallow (cattle fat) was rendered into soap and candles as well as cooking oil; and, most importantly, unprocessed hides and tallow were used as the prevailing medium of exchange both locally and with foreign trade vessels. By 1817, the Verdugos were grazing 1,800 head of "California leather dollars" plus 1,000 calves at San Rafael; twelve years later the number had almost doubled.

Jose Maria Verdugo died in 1831, but the successes of Rancho San Rafael were carried on by the old soldier's heirs, his only son, Julio, and his favorite daughter, the blind and unmarried Catalina. Aided by thirteen sons and scores of Indian servants (products of the fast-decaying mission system), Julio Verdugo not only undertook management of the vast acreage, but became, in effect, the ruler of a self-sustaining, patriarchal mini-king-

dom that fed, clothed, and sheltered its own. Julio inherited San Rafael at a time when pastoral simplicity was a by-word for Mexican California, when political tensions were ignored, when the hide and tallow trade was reaching its peak of economic beneficence. The Verdugos, understandably, prospered, for Rancho San Rafael was part of the social and economic manorialism characteristic of the Mexican California rancho system. When that fragile system fell to an advancing American frontier, however, so too did the fortunes of the Verdugo family.

The decline was progressive, and, in fact, had harbingers in the last, uneasy years of Mexican sovereignty in California. Under revised laws of the Mexican republic, unoccupied and uncultivated lands had become open for use by any qualified citizen who legally petitioned for them, even though such lands might previously have been claimed by someone else. Because of its physical isolation and lack of adequate water, the northern reaches of the San Rafael grant (today's Tujunga, La Crescenta, and La

Canada Valleys) had remained virtually, unused by both Jose and Julio Verdugo, and thus were susceptible to counter-claim. In 1841, title to the Tujunga area of San Rafael was granted, despite Verdugo protests, to Francisco Lopez, and two years later the La Canada acreage (including what is now Descanso Gardens) was similarly claimed.

Ignacio Coronel, secretary of the Los Angeles ayuntamiento (city council) that inspected and passed judgment on the utilization and occupation of contested lands, was witness to the Tujunga inspection, and, discovering a personal attraction for the rugged land, he filed a petition with Mexican Governor Micheltorena for another unused portion of Rancho San Rafael, a tract he called "La Canada atras de Los Verdugos" (the glen behind the Verdugos). Julio Verdugo again protested the loss of land, but again to no avail. Rancho La Canada, including the Verdugo Woodlands, La Crescenta-La Canada Valleys, and the San Rafael Hills, was granted to Ignacio Coronel on May 12, 1843.

The Coronel family, anxious to establish roots in the land (they were relative newcomers to Los Angeles who had arrived from Mexico City only nine years earlier as members of the Hajar-Padres Colony), moved within the year to a hastily constructed tule house on the new rancho. These first La Canada settlers, however, were faced with difficulties almost from the outset. "The Rancho is the principal place where all the wild Indians come down into this valley for the purpose of committing depredations and robberies," wrote a Coronel son. The discouraged family left Rancho La Canada in 1847, discontinued ranching activities there by 1850, and, in 1852, sold the deserted land to two American lawyers, Jonathan Scott and Benjamin Hayes. Ignacio Coronel received \$700 plus legal services for the acreage and thankfully removed himself from what was shortly to become a complex legal and political battle.

This is the first of a series of articles on Descanso Gardens by Sandy Snider, Department historian.

Sketch map of Los Angeles Basin. Jose Verdugo's Rancho San Rafael (1784) occupied 42,000 acres between the Arroyo Seco and the Los Angeles River, a triangular tract of land encompassing the present-day cities of Glendale and Burbank.



CACAO: FOOD OF THE GODS



When Hernando Cortés and Bernal Díaz del Castillo stood before the throne of Montezuma in his palace of Temistlan (in today's Mexico City) in 1520, they were offered a drink in goblets of beaten gold. Neither Cortés nor Díaz realized that the Indian brew they were drinking would, in the not very distant future, conquer not only the Spanish Empire but others as well.

The beverage, which the Aztecs called *chocolatl*, was made from the seeds of a tree they called *cacahoaquahuatl* or *cacahuacuahuatl*. The seeds were ground with chili and other spices, and the mixture, after the addition of water, was beaten and stirred slowly over a low fire until it became a foamy, bubbling liquid with the consistency of a chocolate milkshake. It was served hot or cold. Montezuma was exceedingly fond of it. No less than 50 jars or pitchers were prepared each day for his own consumption and 2,000 more for his household.

The Spaniards were not greatly impressed with the Aztec's chocolate. It was a very bitter decoction. They changed their minds quickly, however, after learning more about its alleged miraculous properties. The beverage made lovemaking more exciting, it was said, and the ardor of lovers more potent. Actually, chocolate is no more aphrodisiac than coffee, tea, or milk. For the Spaniards of 1520, it was no quackery. They already had seen many strange things in

this strange country and were ready to believe almost anything. Also, they had witnessed Montezuma himself drinking chocolate before he went to visit his wives.

About 1550, some nuns in a cloister at Chiapas about 300 miles southeast of Mexico City, mixed roasted ground seeds with vanilla and sugar in an effort to make the bitter beverage more palatable. They hardly could have been more satisfied with the result. Sweet chocolate was born. Why the nuns were toying with an aphrodisiac in the first place, the records do not show.

From the cloisters of Chiapas, the improved chocolate spread throughout New Spain and far beyond. As its popularity grew, it also caused some problems. In Chiapas, the Spanish ladies found it impossible to sit through a sermon, a mass, or even a high mass in the cathedral, without having their maids bring them chocolate to drink. The bishop was patient at first but finally put his foot down and threatened to excommunicate anyone who drank chocolate in the cathedral. He underestimated the power of women. The ladies paid no attention to his threat, and the next time the priests attempted to take the cups of chocolate away from the maids, swords were drawn and a fight took place between the escorts of the ladies and the priests. Ultimately, most of the congregation walked out on the bishop and began to attend the cloister churches where monks and nuns were

more tolerant about chocolate drinking.

By the middle of the 17th century, chocolate became a well known beverage throughout most of Europe and, as it was fashionable not only to drink chocolate but to be seen drinking it, chocolate houses were opened in all major cities. The first one in London was advertised in the *Public Advertiser* in 1657 as follows: "In Bishopsgate street, in Queen's Head alley, at a Frenchman's house, is an excellent West India drink called Chocolate." The Queen's Head was followed by White's and the Cocoa Tree, both of which were in the vicinity of St. James Palace. White's and the Cocoa Tree later became the first and the most aristocratic clubs in England. Before this the idea of a club never existed anywhere.

Having now reached the 18th century, it seems about time to give the botanical name to the Aztec's chocolate tree. In 1753, Carl von Linné, Swedish botanist and professor of medicine, named it *Theobroma cacao*. *Theobroma* means "food of the gods" in Greek and there are some who believe Linné was under the influence of a cup of hot chocolate when he chose that name. It seems more correct to assume that he was well informed about the mythology of the Aztecs and their belief in the divine origin of the seed of the cacao tree. According to their tradition, it was a gift from the gods, delivered to them by Quetzalcoatl, the God of Air.



A five-year-old cacao tree.

The correct nonbotanical name for the tree, for the pod that grows on it, and for the seed or beans that grow within the pod, is cacao. Cacao is also the proper name for the white butter that is derived from the seed. The word "cocoa" is now almost universally used in English-speaking countries in place of cacao. Correctly used, cocoa refers only to the powder manufactured from the seeds of the cacao tree and to the drink prepared from the powder. No distinction of spelling as between the tree and its product occurs in any other modern language. In Spanish, Italian, French and Dutch they are known as cacao; in German, Kakao, and in Portuguese, cacau.

The cacao tree at maturity has a

height of 15 to 25 feet and a spread of 20 to 30 feet. The leaves are elliptic, ovate or obovate, entire, petioled, alternate, usually glabrous, and up to 12 inches long and 8 inches wide. The largest leaves are in the middle of the tree where they receive the least light. The leaves on the side, or so-called fan branches, are produced in flushes. The young leaves are limp, hang down vertically, and are pale green, white or pink in color. New flushes normally appear 2 to 4 times per year.

The flowers are whitish or pinkish, small, clustered and appear from the bark of the trunk and main branches. Each flower has 5 sepals, 5 petals, 10 stamens and 1 pistil. The petals have a

stalk-like claw, expanded blade, and 3 prominent parallel purple ribs (guide lines), and are fused at the base into a 5-parted cup. The stamens are in two whorls of 5 each. The inner whorl consists of short functional stamens with their anthers partially hidden in the cup-like bases of the individual petals. The outer whorl consists of long nonfunctional stamens forming a ring around the style of the pistil. The tree may bear several thousand flowers a year, of which less than one per cent form fruits, usually 20 to 40 a tree.

The fruits, called pods, are nearly spherical to cylindrical, smooth or warty, with or without 5 or 10 furrows, and up to 12 inches long and 4 inches thick. They are green, yellow, red, purple or brown in color and resemble, particularly when furrowed, cantaloupes. Each pod weighs about 1 pound.

The seeds, called beans, are arranged in 5 rows, 4 to 12 per row. Fresh seeds are surrounded by mucilaginous, whitish, sugary pulp which is removed during the fermentation or drying. There are 20 to 50 seeds in a pod and approximately 400 in a pound. Pollination is effected by a minute midge of the genus *Forcipomyia*. These tiny insects, looking for food, visit many blossoms on a single tree before flying on to another. This means that most of the flowers receive pollen from the same tree and, since they are self-sterile, only a relatively small percentage are cross-pollinated.

The cacao tree is found wild in Guiana, along the Amazon, the Orinoco, and the tributaries of these rivers, and also in Central America. The wild plants of the South American forest have thin-shelled, smooth fruits and deep violet, bitter seeds. The wild plants of Central America have thick-shelled, warty fruits and white, less bitter seeds. Both wild types are represented in cultivation. Races of the first type are called "Forastero," races of the second, "Criollo." The trees which the Spaniards established

around the world at the height of their power were Criollo trees. At present, by far the largest part of the world's crop of cacao comes from the Forastero variety, which is easier to cultivate and more prolific than Criollo.

Cacao can be profitably cultivated within 20 degrees north or south of the equator. It requires a mean shade temperature of 80 degrees Fahrenheit and an evenly distributed rainfall of 50 to 150 inches a year.

By its third year, the tree bears some fruit. Growers try to prevent the fruit from maturing until the tree is five to six years old. Young trees weaken if they are allowed to fruit prematurely. At 10 to 15 years they bear most prolifically and may yield heavily until 80 years of age. The average yield of cacao beans to the tree is not more than 2 pounds per year.

Since the growing season in the tropics is continuous, mature pods may be found on the tree year round. When the fruits are ripe, the seeds become loose from the husks and, if shaken, rattle about, giving a hollow

sound. The pickers, however, learn to judge the ripeness by the outer appearance of the fruit.

After being removed from the pod, the beans coated with pulp are heaped together or placed in bins to ferment. During the process of fermentation, which lasts about a week, the temperature of the heap or bin rises and the beans are turned over from time to time. The heat eventually kills the beans. When they are drying they become dull red, lose their bitter taste, and develop aroma. After washing, drying and polishing, the fermented beans are placed in bags for shipment.

Commercial cocoa and chocolate are prepared from the beans in factories in Europe and America. The beans are first cleaned and sorted and then roasted in iron drums. During this process they develop flavor and become dry and brittle. Next, they are passed between corrugated rollers which crack them into small fragments, called nibs. The nibs are ground to an oily paste, called the

"liquor," which is the starting point for the manufacture of unsweetened and sweetened chocolates, cocoa, and other products.

Bitter or baking chocolate is nothing more than the cooled and hardened liquor. Sweet chocolate is made by adding sugar and various spices or other aromatic material. Milk chocolate contains milk as well as sugar and spices. Cocoa is prepared by removing about two-thirds of the fat (cacao butter) from the liquor in hydraulic presses and powdering and sifting the residue.

Most of the world's supply of cacao is produced in Ghana, Nigeria, and Brazil. Other leading cacao-bean-growing areas are Ivory Coast, Cameroon, Ecuador, Dominican Republic, Equatorial Guinea, Papua New Guinea and Mexico.

The United States is the chief consumer of cacao, followed by Germany, Holland, and Great Britain. In 1973, the United States imported 212 million dollars worth of cacao beans. During the same period per capita consumption of cocoa was 4.2 pounds.

Cacao beans and their products are high in food value. Chocolate has become an important part of emergency rations for armies, navies, expeditions and rescue teams. According to the Handbook of the Nutritional Contents of Foods published by the United States Department of Agriculture, there are 2,291 calories of food energy in one pound of bitter or baking chocolate, 2,395 in sweet chocolate and 2,359 in plain milk chocolate. Milk chocolate with almonds has 2,413 calories and milk chocolate with peanuts 2,463 calories.

An alkaloid, theobromine, is present in the cacao bean. It is a stimulant and a powerful diuretic. The amount consumed in cocoa, however, is very little, far less than the amount of caffeine consumed in prepared coffee.

A cacao tree can be seen in Arboretum Greenhouse No. 1.

Dr. Enari is a senior biologist on the Arboretum research staff.

Cacao fruits (pods). The open fruit shows seeds (beans) surrounded by mucilaginous, whitish pulp.



ARBORETUM, Arcadia

May 1-9 to 4:30 p.m.

Baldwin Bonanza

Presented by the Calif. Arboretum Foundation

May 8-12 to 5 p.m.

Epiphyllum Show

Presented by the Epiphyllum Society of America

May 8-2 p.m.

Sunday Afternoon Talk

"Plants in the Home Environment"

Dr. David Deardorff, botanist

May 14, 15-Sat. 1 to 5 p.m.

Sun. 10 to 5 p.m.

Rose Show

Presented by the Pacific Rose Society

May 21, 22-9 to 4:30 p.m.

Spring Extravaganza

Sponsored by the Calif. Arboretum Foundation

May 28, 29, 30-9 to 5 p.m.

Bonsai Show

Presented by the Santa Anita Bonsai Society

CALENDAR
May, June, July

June 4, 5-9 to 5 p.m.

Satsuki and Azalea Show

Presented by the Satsuki and Azalea Society

June 12-10 a.m.

Sunday Morning Walk

"Historical Buildings"

Sandy Snider, historian

June 18, 19-Sat. 1 to 5 p.m.

Sun. 9 to 5 p.m.

Gladiolus Show

Presented by the Southern Calif. Gladiolus Society

June 25, 26-Sat. 1 to 5 p.m.

Sun. 10 to 5 p.m.

Ivy Show

Presented by the American Ivy Society

July 2, 3, 4-9 to 5 p.m.

Cactus and Succulent Show

Presented by the Cactus and Succulent Society of America

DESCANSO GARDENS, La Canada

May 19-10 to 4 p.m.

Special Guild Walk and Luncheon

June 5-11 to 5 p.m.

Annual Arts and Crafts Festival

Presented by Descanso Gardens Guild

SOUTH COAST BOTANIC GARDEN
Palos Verdes Peninsula

May 1-10 a.m.

Sunday Morning Walk

"Flowering Plants"

Armand Sarinana, superintendent

May 14, 15-10 to 5 p.m.

Fiesta de Flores

Sponsored by South Coast Botanic Garden Foundation

June 5-2 p.m.

Sunday Afternoon Talk

"Indoor Container Gardening"

Edward Hartnagel, assistant superintendent

June 4, 5-10 to 5 p.m.

Japanese Doll and Bonsai Show



View of typical Arboretum-sponsored Arbor Day tree-planting ceremony at Los Angeles County schools last March 7. (Photo by Bob Duricka)